A NEW GENUS *MANGINA* ALONG WITH THE TAXONOMY OF *ARGINA* HÜBNER (ARCTIINAE: ARCTIIDAE: LEPIDOPTERA) [1]

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(*With eleven text-figures*)

Key words: *Argina*, *Mangina*, genitalia, congeneric

The taxonomy of genus *Argina* Hübner has been revised by incorporating the male and female genital features of the type species *astrea* (Drury). Another Indian species *argus* Kollar, earlier described under *Argina* Hübner, has been found non-congeneric on the basis of its genital structures. A new genus *Mangina* has, therefore, been proposed for *argus* Kollar. The new genus is closely allied to *Argina* Hübner.

INTRODUCTION

According to Hampson's key (Hampson 1894), two species namely *cribraria* Clerck and *argus* Kollar are referred to genus *Argina* Hübner. The specific status of these two species was confirmed from the Zoological Survey of India, Kolkata, Forest Research Institute, Dehra Dun and Natural History Museum, London. Watson *et al.* (1980) observed that *Phalaena astrea* Drury is the oldest of junior subjective synonyms of *Phalaena cribraria* Clerck, and made it available as a subjective replacement name for the former species i.e. *Argina cribraria* Clerck which is also the type species of *Argina* Hübner. A critical study of the structures of male and female genitalia reveal that the species *argus* Kollar is not congeneric with the type species *astrea* (Drury) of genus *Argina* Hübner. Thus, the status of this species is not stable under genus *Argina*. Accordingly, a new genus *Mangina* has been proposed for this species, and the justification has been given.

TAXONOMIC DESCRIPTIONS

Genus *Argina* Hübner

Hübner, 1818, Verz. bekr. sch., 1818 : 167.

Type Species: *Argina astrea* (Drury).

Distribution: Throughout India, Africa, Mauritius, China, Sri Lanka, Myanmar, New Guinea and Australia.

Diagnosis: Labial palpus upturned, extending well beyond lower level of frons, third joint short. Antenna ciliated in both sexes. Forewing with veins R_2 and R_3 from areole formed by anastomosis of R_3 and R_4; M_1 arising from upper angle of cell; veins M_2, M_3 and Cu_1 from close to lower angle of cell. Hindwing with vein $Sc + R_1$ originating from before middle of cell; M_1 from upper angle of cell; M_2, M_3 and Cu_1 from or near the lower angle of cell; in male, hindwing with a fold on inner margin containing a glandular patch near base with a tuft of long hair beyond it, tornus produced. Hind tibia with a pair of terminal spurs. Male genitalia with uncus moderately long, tip with an acute spine; fenestrula prominent; tegumen with both its arms wide; almost of same length as vinculum; saccus more or less developed; valva long; sacculus well marked; costa slightly defined; valvula curved, extending well above cucullus; cucullus flap-like, with longitudinal rows of sclerotized lines and large number of denticles; juxta with two parallel sclerotized flaps, joined together at tip, aedeagus with its anterior end balloon-shaped; vesica with 3-4 patches of denticles and spines representing cornuti. Female genitalia with corpus bursae large, membranous; three rounded signa present; ductus bursae short and broad, heavily sclerotized: papilla analis triangular, setose with short and long setae.

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Argina astrea (Drury)

(Figs 1-5)

Phalaena astrea Drury, 1773, Ill. Exot. Ins. *2*: 11; Hmpsn., 1894, Moths Ind. *2*: 51; *Phalaena cribraria* Clerck, 1764, Icon. Inst. rariorum, *2*: 54; *Argina guttata* Rambur, 1859, Lep. And. *2*: 229; *Argina notata* Butler, 1877, Trans. Ent. Soc. 1877 : 365.

Material examined: Himachal Pradesh: Solan, 2.vi.1994, 1♂, 1♀; Punjab: 7.ix.1991, 1 ♂, 2 ♀♀; 1.x.1991, 3 ♂♂. Uttar Pradesh: Dehra Dun, 13.x.1991, 1 ♂, 1 ♀; Kempty Falls, 20.ix.1995, 1 ♂; West Bengal: Kurseong, 28.iv.1995, 1 ♂, 1 ♀; 29.iv.1995, 6 ♂♂. Coll. Amritpal Singh.

Distribution: Recorded throughout India, Sri Lanka, Myanmar, China, Mauritius, New Guinea.

Remarks: Holloway (1988) described and illustrated *Argina astrea* (Drury) in detail, including its genital structures and synonymized *cribraria* Clerck under it. Thus, the description of the species is omitted. However, the male and female genitalia have been illustrated here for comparison with the type species *argus* (Kollar) of the new genus *Mangina*.

Mangina gen. nov.

Type Species: *Argina argus* Kollar.

Distribution: Throughout India, Sri Lanka and Myanmar.

Diagnosis: Labial palpus upturned, surpassing lower level of frons. Antenna simple, ciliated in both sexes. Forewing rather short and broad; veins R_2 from short areole formed by anastomosis of R_3 and R_4; R_5 from common stalk of R_{3+4}; M_1 arising from upper angle; M_2 from above lower angle; Cu_1 before lower angle of cell; Cu_2 beyond middle of cell. Hindwing with vein $Sc + R_1$ originating before middle of cell; Rs and M_1 from upper angle of cell; M_2 and M_3 from lower angle of cell; Cu_1 well before lower angle of cell; in male, tornus produced and glandular patch near base, with a tuft of long hair beyond it. Hind tibia with a terminal pair of minute spurs. Male genitalia with uncus long and curved, gradually narrowing towards tip, sickle-shaped; fenestrula rounded; tegumen well developed, inverted V-shaped, almost double length of vinculum; vinculum small and narrow, well sclerotized; saccus narrow, knob-like; valva long and narrow; sacculus broad and distinct; costa narrow; cucullus and valvula not marked, distal end bifurcated with paired spines on each tip: ampulla well sclerotized, broad at base, tip sharply pointed, setose, inner arm extends into fused cucullus and valvula. Aedeagus long and narrow, anterior end broad, both of its walls equally sclerotized, distal end with a sclerotized patch; vesica armed with a large number of fine denticles. Female genitalia with corpus bursae large, oval and membranous, a pair of semicircular signa present; ductus bursae broad, highly sclerotized; accessory sac present; anterior apophyses shorter than posterior apophyses, apices rounded and narrow; papilla analis broad and rounded, setose with micro and macro setae.

Mangina argus (Kollar) comb. nov.

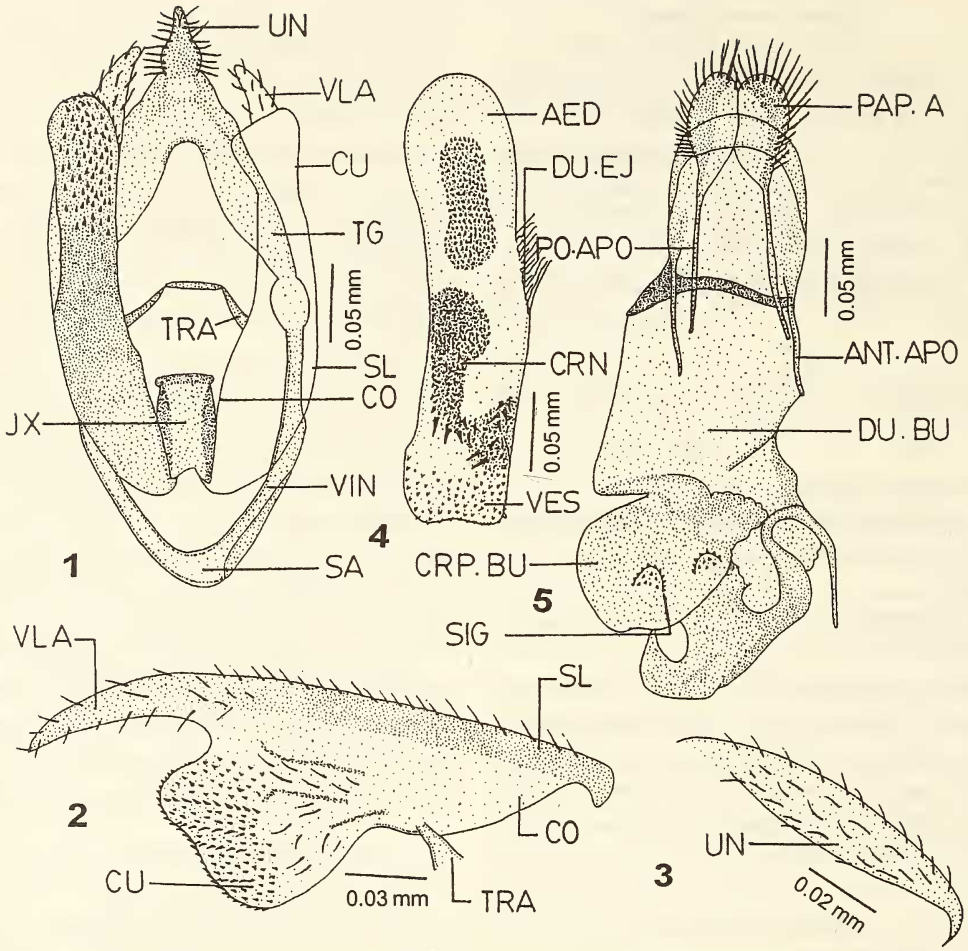
(Figs 6-11)

Kollar, 1844, Hüge's Kaschmir, *4*: 467; Moore, 1882, Lep. Ceyl. *2*:105, Hmpsn. 1894, Moths Ind. *2*: 51

Genitalia: As described for genus diagnosis.

Material Examined: Himachal Pradesh: Nauni, 1.viii.1994, 1 ♂; Sikkim: Namchi, 2.v.1995, 1 ♂; Manipur: Ukhrul, 20.ix.1994, 1 ♂; Meghalaya: Jowaii, 30.ix.1994, 1♀; Cheerapunjee, 2.x.1994, 1♀; Uttar Pradesh: Dehra Dun, 18.x.1991, 2 ♀♀; Kempty Falls, 4.vi.1993, 2 ♂♂, 1♀; West Bengal: Kurseong, 28.iv.1995, 1♂, 3 ♀♀; Coll. Amritpal Singh.

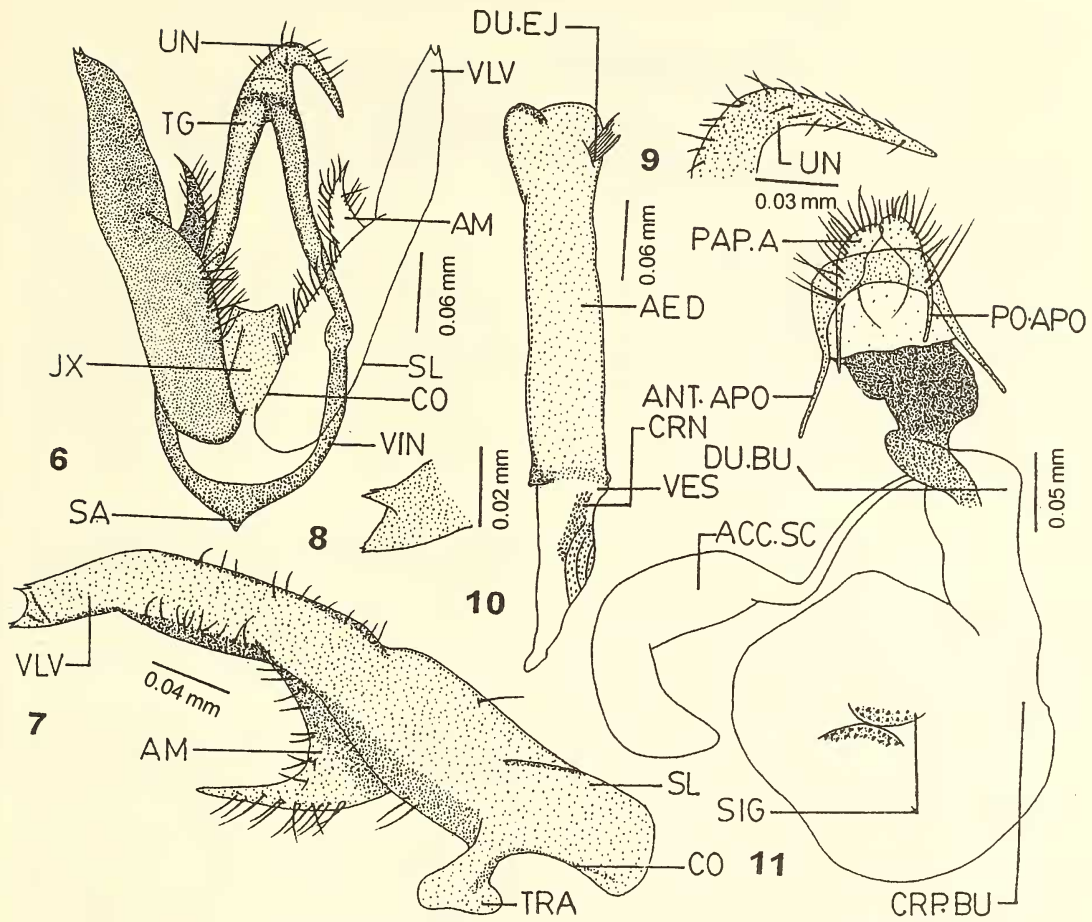
Remarks: As mentioned earlier, *argus* Kollar fails to conform to the description of genus *Argina* Hübner and is also non-congeneric



Figs 1-5: *Argina astrea* (Drury): 1-4. Male genitalia; 5. Female genitalia

Abbreviations: AED: Aedeagus, ANT.APO: Anterior apophyses, CO: Costa, CRN: Cornuti, CRP.BU: Corpus Bursae, CU: Cucullus, DU.BU: Ductus Bursae, DU.EJ: Ductus ejaculatorius, JX: Juxta PAP.A: Papilla Analis, PO.APO: Posterior apophyses, SA: Saccus, SIG: Signum, SL: Sacculus, TG: Tegumen, TRA: Transtilla, UN: Uncus, VES: Vesica, VIN: Vinculum, VLA: Valvula

with an allied genus *Utetheisa* Hübner, and other genera of Subfamily Arctiinae. Thus, a new genus *Mangina* is suggested for this species and the diagnosis of the new genus and its type species *Argina argus* Kollar is given. The present and correct status of the species becomes *Mangina argus* (Kollar) comb. nov. The new genus *Mangina* is closely allied to *Argina* Hübner with respect to wing maculation, wing venation, presence of glandular patch and tornus of hindwing, and a pair of tibial spurs. The unique morphological features particularly the genital structures, namely uncus, valva and aedeagus of male genitalia and corpus bursae, ductus bursae and signa of female genitalia of the type species *argus* make it totally different from the type species *astrea* Drury of genus *Argina* Hübner.



Figs 6-11: *Mangina argus* (Kollar) comb. nov.: 6-10. Male genitalia; 11. Female genitalia.

Abbreviations: ACC.SC: Accessory sac, AED: Aedeagus, AM: Ampulla, ANT.APO: Anterior apophyses, CO: Costa, CRN: Cornuti, CRP.BU: Corpus Bursae, DU.BU: Ductus Bursae, DU.EJ: Ductus ejaculatorius, JX: Juxta, PAP.A: Papilla Analis, PO.APO: Posterior apophyses, SIG: Signum, SL: Sacculus, TG: Tegumen, TRA: Transtilla, UN: Uncus, VES: Vesica, VIN: Vinculum, VLV: Valva

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